



**US Army Corps  
of Engineers**  
Galveston District

(ORIGINAL)  
signed 6/28/06

**Galveston District  
Southwestern Division**

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## **Project Management Plan**

**Brazos Island Harbor (BIH), Texas  
Channel Improvement Project  
Feasibility Study**

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**June 5, 2006**

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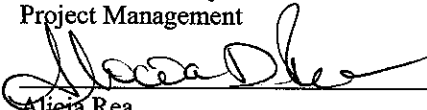
## PROJECT MANAGEMENT PLAN AGREEMENT

### Statement of Agreement

By approving this document via email or PPDS annotation the undersigned agrees to follow the provisions of this Project Management Plan update. Each activity will focus its efforts and influence to provide complete comprehensive, up-front planning and to meet the objectives of designing and constructing this project to fulfill User needs and to meet U. S. Army quality, safety and reliability expectations, with minimum changes, within budget, and within schedule. Changes to this plan must be coordinated with and approved by the undersigned or their designated representatives.



Paula Rankin Wise  
Project Management

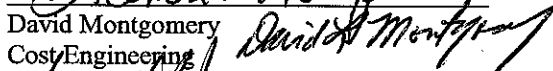


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Terrell Roberts  
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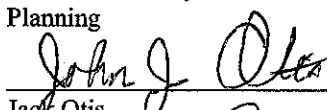
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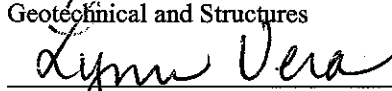
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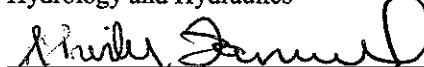
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Project Engineering



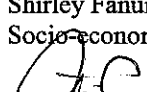
John Damm  
Geotechnical and Structures



Lynn Vera  
Hydrology and Hydraulics



Shirley Fanuiel  
Socio-economics







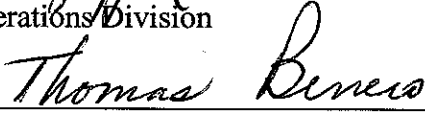

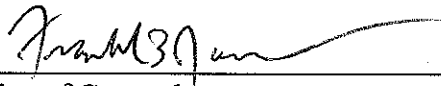
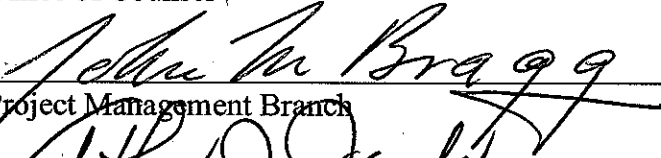

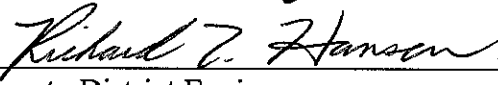
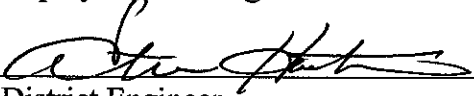
Justin Cross  
Real Estate

As the representative for the non-Federal Sponsor, I have reviewed and concur that the level of effort and estimated study costs are based on the best available information and specific assumptions made at the time the PMP was developed. I understand that the work efforts to be performed by the Galveston District and the Sponsor will be reviewed during the study, as they arise, to determine who is capable to perform the work more efficiently and effectively. Finally, I understand that should any of the study assumptions change, the project cost could change.



Hector J. Lopez, PE  
Port of Brownsville

**PROJECT MANAGEMENT PLAN  
ENDORSEMENTS**

	19 JUN 06
Planning, Environmental and Regulatory Division	Date
	19 June 2006
Engineering and Construction Division	Date
	19 June 06
Real Estate Division	Date
	19 June 06
Operations Division	Date
	21 June 06
Contracting Division	Date
	21 Jan 06
Resource Management Office	Date
	21 June 06
Office of Counsel	Date
	21 Jun 06
Project Management Branch	Date
	20 Jan 06
Deputy District Engineer for Project Management	Date
	22 June 06
Deputy District Engineer	Date
	28 JUN 06
District Engineer	Date

## INTRODUCTION

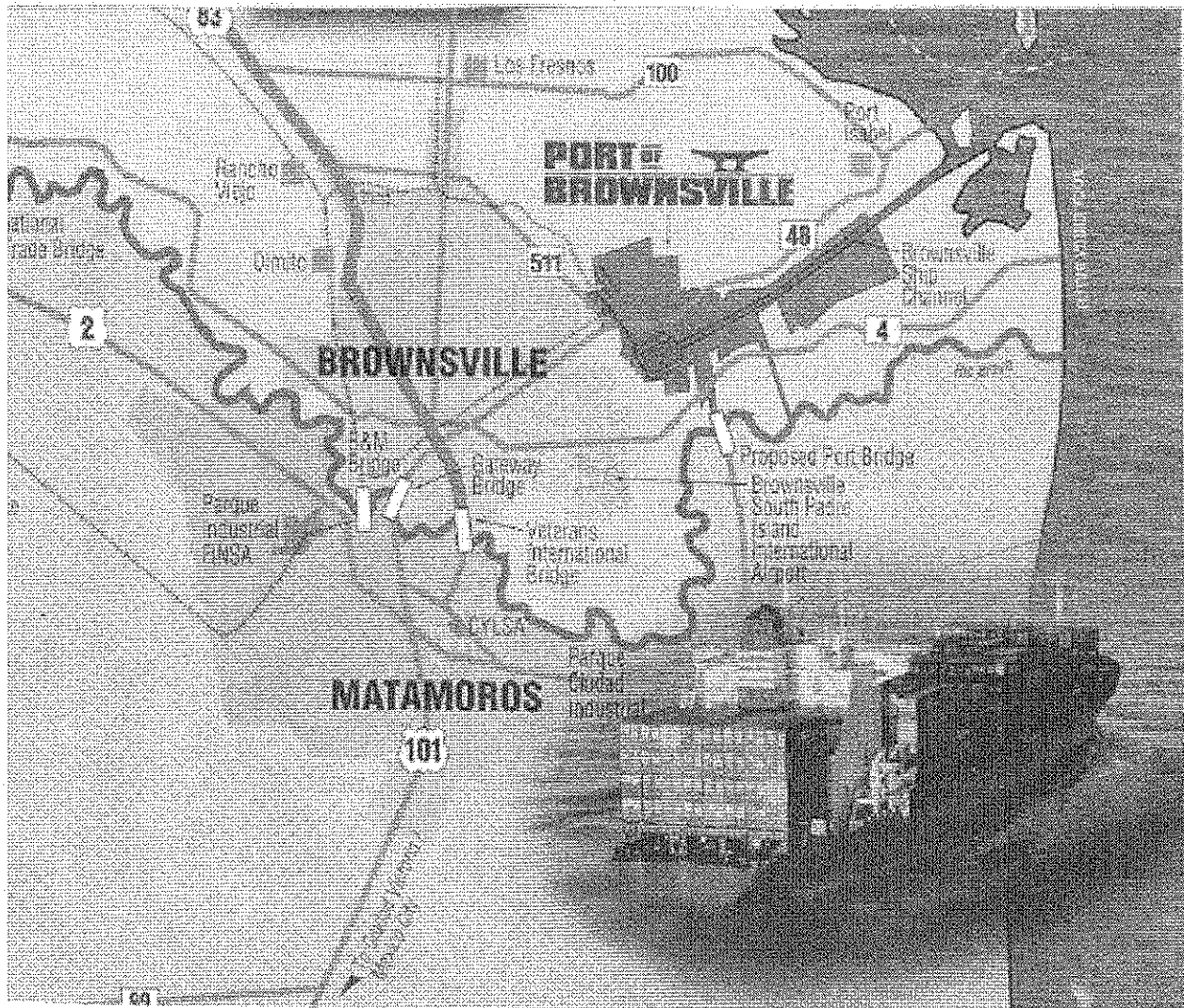
The Brazos Island Harbor (BIH) Project, also known as the Brownsville Ship Channel, is an existing deep-draft navigation project located on the lower Texas coast. The existing project consists of a 42-foot deep (plus 2-foot over-depth) by 300-foot wide entrance channel for a distance of 2.5 miles converging to a natural water depth of 44 feet in the Gulf of Mexico; a 42-foot deep by 250-foot wide by 14.8 mile long channel within the inland segment of the waterway; a 42-foot deep by widths varying from 325 to 400 feet at the turning basin for a length of 5,200 feet; and the final segment of the Brownsville Turning Basin at a depth of 36 feet and a width of 1,200 feet.

The location of the channel is shown in Figure 1. The Brownsville Ship Channel lies to the east of the city of Brownsville.

A reconnaissance study was undertaken to determine whether commercial navigation benefits would be produced by improving the lower segment of the waterway in the vicinity of Port Isabel, Texas, that are sufficient to offset the costs and environmental consequences of the proposed improvements. The reconnaissance study concluded that channel deepening and widening is feasible and that it is in the Federal interest to conduct more detailed, feasibility-level studies on a cost shared basis. The Brownsville Navigation District is the non-Federal Project Sponsor. A Feasibility Cost Sharing Agreement is required for this project. The preliminary cost estimate to perform the Feasibility study is \$6.7M and the duration is approximately 48 months.

The feasibility study will begin after Federal and non-Federal funds are made available to the District in Fiscal Year (FY) 2006. The Project Management Plan (PMP) is a living document, which presents the activities required to accomplish the feasibility study and submit a feasibility report to Congress for authorization. The cost of the feasibility study will be funded on a 50-50 basis between the U.S. Government and the Project Sponsor. The schedule for the feasibility study phase can be found in Appendix "B" of this document.

**Figure 1. Location Map.**





## PROJECT DELIVERY TEAM

The PMP for feasibility studies to be conducted on the BIH, Texas Project was prepared by the District's Project Delivery Team (PDT) in cooperation with the non-Federal Project Sponsor. All team members contributed toward the identification of work to be accomplished, the necessary funding, and an acceptable schedule that complies with District work plans, budgets and manpower constraints, and an acceptable schedule that complies with District and Project Sponsor work plans.

Current team members are as follows:

Paula Wise	CESWG-PM-J	Project Manager
Robert Heinly	CESWG-PE-PL	Planning Lead
Jack Otis	CESWG-EC-EP	Design Project Engineer
Terrell Roberts	CESWG-PE-PR	Environmental Lead
Nicole Minnichbach	CESWG-PE-PR	Cultural Resources
Kristy Morten	CESWG-PE-PR	HTRW
Shirley Fanuiel	CESWG-PE-PL	Economics
Lynn Vera	CESWG-EC-EH	H&H
Brenda Hayden	CESWG-EC-EG	General Engineering
David Montgomery	CESWG-EC-E	Cost Engineering
John Damm	CESWG-EC-ES	Geotechnical
Justin Cross	CESWG-RE-A	Real Estate
Alicia Rea	CESWG-OD-N	Operations
Hector J. Lopez	Brownsville Navigation Dist.	Director of Engineering

## SECTION I – GENERAL

### OVERVIEW AND REFERENCES

The work required for this study consists of office, field, and laboratory work necessary to complete the feasibility phase studies for evaluating deepening and widening the existing BIH deep-draft navigation project. The feasibility study will include sufficient studies to assure that the project recommended in the Feasibility Report will be safe, functional, economically justified, and environmentally acceptable; that the requirements of the National Environmental Policy Act (NEPA) have been met; that a reasonable baseline cost estimate has been prepared; and that plan formulation issues, including economic analysis, will not need to be addressed during the Preconstruction Engineering and Design Phase (PED). The work shall generally follow guidelines set forth by:

"Preparation and Use of Project Study Plans," EC 1105-2-208, Department of the Army, U.S. Army USACE Engineers, 23 December 1994.

"Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies," Water Resources Council, 10 March 1983.

"Planning Guidance Notebook", ER 1105-2-100, Department of the Army, U.S. Army USACE Engineers, 22 April 2000.

"Planning Guidance Letter 95-02, Alternative Review Process," Department of the Army, U.S. Army USACE of Engineers, 25 July 1995.

"Policy and Procedures for Implementing NEPA," ER 200-2-2, Department of the Army, U.S. Army USACE Engineers, 4 March 1988.

"Program and Project Management," ER 5-1-11, Department of the Army, U.S. Army USACE Engineers, 27 February 1998.

"Civil Works Cost Engineering," ER 1110-2-1302, Department of the Army, U.S. Army USACE Engineers, 31 March 1994.

"Engineering and Design for Civil Works Projects," ER 1110-2-1150, Department of the Army, U.S. Army USACE of Engineers, 31 August 1999.

"The Real Estate Handbook," ER 405-1-12 Chapter 12, Department of the Army, U.S. Army USACE of Engineers, 31 August 1999.

"Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects," ER 1165-2-132, Department of the Army, U.S. Army USACE of Engineers, 26 June 1992

"National Harbors Program: Dredged Material Management Plans," EC 1165-2-200, Department of the Army, U.S. Army USACE of Engineers, 21 July 1994.

#### BASIC REQUIREMENTS

The work to be performed shall generally consist of:

- Reviewing the problems and needs identified in the reconnaissance study and verifying that these problems and needs still exist;
- Identifying other concerns or needs which the public may have;
- Forecasting the future conditions within the study area should there be no Federal actions to deepen and/or widen the existing BIH project;
- Developing a comprehensive array of channel improvement designs and dredged material management plans from which detailed plans shall be developed;

- Preparing construction, maintenance, and operation cost estimates for the investigated plans of improvement;
- Computing annual benefits for the various alternative plans;
- Developing annual costs for all plans considered;
- Evaluating the engineering and economic feasibility of each alternative;
- Assessing environmental impacts of the selected plan(s) including impacts on biological resources, socioeconomic resources, cultural resources, recreation, and land use;
- Determining possible mitigation measures;
- Developing associated costs for the recommended channel modifications; and
- Preparing the required documentation to present the studies, findings, and recommendations.

The studies and investigations conducted shall provide the basis for determining the economic, environmental, and engineering feasibility for providing navigation improvements. Alternatives in addition to those supported by the Project Sponsor will be formulated and evaluated to identify the optimum level of improvement from a Federal perspective and to determine the degree of Federal interest in the improvements preferred by the Project Sponsor. The alternative plans shall be formulated in a systematic manner to ensure that all reasonable alternatives have been addressed and that the optimum plan has been identified. Each alternative plan shall include environmentally compatible design measures to mitigate adverse effects on natural resources, including fish and wildlife. The alternative plan that reasonably maximizes National Economic Development (NED) benefits shall be identified as the NED plan.

As a result of the Feasibility study, draft and final decision documents and supporting technical documents will be produced, should a recommended plan be identified. The decision document is the report that will be forwarded to the Congress for authorization and will be comprised of the Feasibility Report, which will include an Environmental Impact Statement (EIS) and supporting appendices. This document will describe, in detail, the problems identified, plans formulated, engineering and economic feasibility of each alternative, and the social and environmental constraints and impacts for each alternative. Also, it will present the study recommendations. The technical documents will report on the various technical studies performed to reach the conclusions presented in the Feasibility Report. This supporting documentation will be prepared and reproduced separately for technical review. Included in the supporting documentation will be an Engineering Appendix, a Baseline Cost Estimate, and a Real Estate Plan.

## DREDGED MATERIAL MANAGEMENT PLAN

The assessment of future without-project conditions and the formulation and evaluation of alternative plans of improvement are dependent upon a valid 50 year Dredged Material Management Plan (DMMP) for the proposed realignments. The assessment of future without-project conditions and the formulation and evaluation of alternative plans of improvement will be based on the best information available at the time that this work is being done. After the DMMP for the proposed project has been completed, the assessment of future without-project conditions and the formulation and evaluation of alternative plans of improvement will be reviewed and changes made as appropriate.

As Project Sponsor for the waterway, the Port of Brownsville has the overall responsibility for acquiring dredged material placement areas. The Port of Brownsville will undertake a series of studies to define the most effective and efficient way to handle both new material from the channel improvements and future maintenance material. The final product will be a new long-term Dredged Material Management Plan (DMMP).

Major benefits can be achieved through effective planning for use of the dredged material. The most immediate opportunity is associated with the long-term blowing dust problem in the region which is being addressed by a large multi-agency/public work group in which the Port of Brownsville is an active partner. The problem has been partially mitigated by the reflooding of the Bahia Grande. However, major sources of blowing dust remain and they continue to have adverse effects on public health and well being in surrounding communities as well as causing physical damage to infrastructure and safety hazards on roadways near the ship channel. Some of the remaining sources are active and inactive dredged material placement areas (DMPA's). New cut material could be used to cap and support revegetation of the existing public sites while new DMPA's could be located along the channel further inland where the effects of blowing dust on populated areas would be much reduced. New DMPA's could be designed to help minimize the potential to generate large volumes of dust during prolonged drought periods that regularly occur in the region. Opportunities for public/private partnerships exist with respect to potential development on Long Island, a former DMPA that has become a major source of dust that impacts portions of Port Isabel as well as the existing residential areas on the island. Most of the island belongs to two private parties while the remainder is owned by the Brownsville Navigation District. Additional opportunities might be gained by filling low-lying upland sites along the ship channel to facilitate future development.

A major use for dredged material, assuming that a substantial portion of it will be sand, is continuation and possible expansion of the long-term ongoing beach nourishment program on South Padre Island. Material from the regular maintenance dredging is placed on the beaches in the Town of South Padre Island and in Cameron County's Isla Blanca Park at the southern tip of the island; the beach has been designated as an alternate placement area.

Additional opportunities exist in the park for restoration of eroded beaches and shoreline in Isla Blanca Park. Extensive erosion has occurred along the jetty walls at Dolphin Cove. When the jetties were built, the USACE extended the jetty walls around the perimeter of the cove, but

without benefit of the usual supporting foundation. As a result, there has been extensive erosion at the base of the wall that has allowed the large stone blocks to shift and settle which has, in turn, allowed extensive erosion of soil from behind the blocks. Adjacent to that area, on the Laguna Madre side of the island, there has been extensive erosion at Children's Beach in the Boy Scout's camp area and at other parts of the park.

Potential beneficial uses for dredged material will be explored with regional stakeholders and recommended beneficial uses will be included in the DMMP.

### **Environmental Benefits**

Major dredging activities would present an opportunity to undertake habitat creation and enhancement work that would not otherwise be feasible by combining the work and "piggybacking" on the dredging equipment mobilization and improved accessibility. The studies will investigate the benefits that can be achieved by shaping flats on either side of the dredged channel to facilitate the growth of marine vegetation that would provide the valuable habitat and might also be effective in reducing bank erosion and the resultant sedimentation.

The studies will also address the benefits that would be achieved through improved flow and enhanced circulation associated with a wider and deeper channel. This would be especially beneficial with respect to tidal flow and circulation patterns for the Bahia Grande Restoration Project, in which the Port of Brownsville is a partner. Similar benefits might also be realized in the South Bay area, which includes protected rookery island, and in San Martin Lake.

### **NON-FEDERAL PROJECT SPONSOR AND COORDINATION**

The Galveston District, U.S. Army Corps of Engineers (USACE) is responsible for the general management of this study. The Port of Brownsville is the non-Federal Project Sponsor and has been an active participant during the reconnaissance phase. As Project Sponsor for the waterway, the Port of Brownsville has the overall responsibility of acquiring dredged material placement areas. The feasibility phase is cost-shared equally between the Project Sponsor and the Federal government through the General Treasury. Therefore, a formal Feasibility Cost Sharing Agreement (FCSA) will need to be executed between the Federal government and the Port of Brownsville.

The Project Sponsor will review and participate in the development of all scopes of work for studies associated with the Feasibility phase. The Project Sponsor, concurrently with the USACE, will perform periodic reviews. The reviews will focus on the study schedule, engineering analyses, cost estimates, economic analyses, and environmental analyses. The Project Sponsor will participate on the PDT and provide several agreed upon study activities.

In recognition of the fact that the PMP is intended to be a flexible document that will be implemented over a 4 to 5 year period, it would be valuable to have an annual work plan to supplement the PMP. This will be accomplished as follows:

1. Approximately 60 days before the start of the fiscal year, a series of Task Orders will be developed to cover all work to be done in the upcoming fiscal year.
2. Each Task Order shall as a minimum, contain the following: (a) description of the work to be done, (b) budget, (c) schedule, and (d) identification of the parties performing the work.
3. The series of Task Orders will be circulated to the PDT for their comments
4. All Task Orders will have to be approved by the USACE and the Port, prior to their issuance.
5. All Task Orders shall be incorporated as amendments to the PMP.

## MEASURES OF PROGRESS

Overall progress of the study will be measured through progress on products identified in this PMP. A series of technical review meetings will occur during the study process with representatives from the district, Project Sponsor, headquarters, division, and other agencies to identify any changes to the resources designated for any portion of the study. Any changes will be analyzed for their impact upon other critical functions as well as the completion date of the project. Significant impacts to the project cost and/or schedule will be elevated to higher administrative levels to ensure minimal disruption to the study. The P2 upward reporting system will be utilized as an upward reporting tool. The USACE PM will utilize the USACE P2 reporting system on a monthly basis to reflect project status, upcoming milestones, any significant changes in the approved project schedule and/or budget. Likewise, the P2 reporting system will contain an explanation and the justification for any feasibility study cost and/or schedule impacts.

Progress reports will be made monthly to the District Project Review Board (PRB). Early decisions on competing resources and priorities will be addressed in this forum as well as upward reporting through established USACE procedures and those required by the Project Sponsor.

Quality assurance / quality control (QA/QC) review procedures will also be adhered to as required by Headquarters (HQ) guidance on the implementation of new technical review policies and procedures. Each technical element will be required to comply with the approved QA/QC plan. Each identifiable product will be thoroughly reviewed by the District's technical review group and the Project Sponsor before submittal to Headquarters for policy review. Checklists, as a minimum, will be utilized to assure that a complete technical review has been accomplished.

## SECTION II – STUDY PROCESS AND SCOPE OF WORK

This section identifies the work required by each District function during the Feasibility study phase and the contribution that the Project Sponsor will be making toward each activity. The work effort and estimated costs are based on the following study scope of work:

- The scope of studies will include preliminary screening of six (6) structural channel improvements, one non-structural plan and a no action plan, a total of eight (8) alternatives.
- The following alternatives will be evaluated during the feasibility study:

1. Deepen existing 42- to 45-foot depth.
2. Deepen existing to 50-foot depth.
3. Deepen existing to 55-foot depth.
4. Deepen existing to 45-foot depth and widen channel bottom by additional 100-foot width.
5. Deepen existing to 50-foot depth and widen channel bottom by additional 100-foot width.
6. Deepen existing to 55-foot depth and widen channel bottom by additional 100-foot width.
7. Non-structural plan.
8. No action plan.

Each alternative will be examined for quantity computations, DMMPs, and likewise cost and benefit estimating purposes. It is estimated that the most likely alternatives that would be evaluated in greater detail during the plan formulation phase of the study.

A DMMP will be developed to identify both new work dredging and the estimated 50-year maintenance requirement. During development of the initial channel improvements study (the alternatives in paragraphs above), the DMMP developed will be preliminary in nature. Once an alternative is selected, a detailed DMMP will be developed. The DMMP will include: one plan that will maximize beneficial uses of dredged material; another that will consider placing some of the material dredged from the entrance channel into an offshore site and another that will evaluate placing the majority of the material dredged from the channel into existing upland placement areas. These plans will be used to determine the recommended placement plan, which may consist of a combination of upland, open water, and offshore placement.

An Engineering Appendix will be prepared in accordance with ER 1110-2-1150. The Engineering Appendix will consist of narrative and plates required to document project features and elements that will form an adequate basis for the project construction schedule and baseline cost estimate.

## STUDY ASSUMPTIONS:

A total of five public notices will be mailed; one study announcement, one public meeting/workshop, draft Report/EIS review, one formal hearing for draft EIS, and a final Report/EIS.

Beneficial Use (BU) sites will be considered.

No more than two plans, the NED and the locally preferred plan (LPP), will be designed to the detail required for an MCASES (M<sub>II</sub>) baseline cost estimate.

Assumption is made that new borings will be required for the channel improvements, structure foundations, new placement areas necessary to contain new work materials resulting from proposed channel improvements, and to develop at least one BU site adjacent to or near the channel.

## SECTION III – ASSIGNMENT RESPONSIBILITY AND SCHEDULE

The Program and Project Management Business Process (PMBP) will be the process by which all work is accomplished. This business process integrates program management by requiring all work in the command to be under corporate oversight, and by centralizing programmatic information to give the Commander ready access to and one location for data, so appropriate corporate decisions can be made and resources managed effectively. The PMBP consists of two major components: the management of individual projects, i.e., project management; and the oversight of collective projects, activities and services derived from assigned missions, i.e., program management. Key elements in the PMBP include:

- (1) To ensure single point accountability for a project, the overall management and leadership of the project is to be placed in the hands of a single individual – the Project Manager (PM).
  - a. The PM is the primary representative of the Commander for the project and is empowered through the Deputy District Engineer for Project Management (DDEPM). The PM is the leader of the team assembled to execute the project, is responsible and accountable for insuring that the team takes effective, coordinated actions to deliver the completed project, and is the primary interface with the Project Sponsor and among the functional elements. The PM is responsible for ensuring that the organization speaks with one voice by coordinating all matters relating to the project, and acting as the Project Sponsor's proponent within USACE to ensure requirements are conveyed, understood, and met.
  - b. To effectively and efficiently deliver quality projects on time and within budget, the PM manages the project resources. The PM is responsible for facilitating corporate decision-making to ensure the products and services of the PDT meet the quality, expectations, and cost/schedule commitments made to the Project Sponsor. All projects must be in compliance with applicable laws, policies, regulations, and Project Sponsor expectations.



- c. The PM is responsible for optimizing corporate and Project Sponsor resources and for across-the-board incorporation of lessons learned and success stories on similar initiatives. Technical members will complement this effort by incorporating lessons learned in their areas of responsibilities.
- (2) Teamwork – The DDEPPM and supporting staff must foster teamwork to establish universal linkages to facilitate seamless Project Sponsor service. The PMBP will be flexible to accommodate Project Sponsor requirements for service.
- a. PDT members shall work in concert to deliver projects that are consistent with Project Sponsor expectations and corporate needs. The PM will ensure that the direction and efforts of the PDT are unified, focused, and coordinated.
  - b. Each member of the PDT will keep their respective organizational element informed at all times, especially of high priority or sensitive project issues.
- (3) Customer Care – The PM is responsible for ensuring that the Project Sponsor understands the PMBP, that USACE understands the Project Sponsor's expectations, and that an effective and continuous interface is established and maintained regardless of where the work is being performed. The PM will inform the Project Sponsor of all financing, contracting, policy, technical, and other project constraints, as well as integrate the Project Sponsor's views throughout the process. The PDT will place the highest priority on communications, service, safety, and Project Sponsor satisfaction throughout the life of the project. Customer care also means executing assigned missions consistent with the national interest.

#### PROGRAMS AND PROJECT MANAGEMENT DIVISION

Project Management will oversee the project scope, schedule, resources, costs, and quality with the goal of delivering a quality product, on time, and within cost. Management of the potential project for improving the BIH (deep draft navigation channel) project will be accomplished under ER 5-1-11, "Programs and Project Management," Department of the Army, U.S. Army USACE of Engineers. The management of the feasibility study and the preparation of the feasibility report will be the responsibility of the Planning Lead (PL); however, the PM will maintain an awareness of the details and commitments during the feasibility phase to establish the needed continuity through completion of the project.

During the feasibility study phase, the duties of the PM and other staff in the Programs and Project Management Division will include the following:

- Monitor actual obligations and expenditures to ensure compliance with the study funding schedule, proper distribution of obligations and expenditures among the standard code of accounts, and effective use of Federal and non-Federal funds.

- Work with PDT members and the Project Sponsor to assure early identification of issues, which may impact study scope, quality, cost, budget, and schedule, and either facilitate resolution of the issues or elevate them to the appropriate decision-making level.
- Prepare required upward reporting documents and those required by the Project Sponsor.
- Conduct monthly updates at the Project Review Board meetings.
- Review all project documents for consistency with the FCSA prior to formal submission to the Project Sponsor, higher authorities, or outside agencies.
- Prepare and review annual budgeting and programming documents.
- Coordinate with the Project Sponsor to ensure their understanding of local cost-sharing requirements, to update them on the study progress, to review and monitor their compliance with commitments, and to participate in resolution of technical issues with them.
- Lead in the preparation of the draft Project Cooperation Agreement (PCA) for project construction.
- Participate in the Feasibility Scoping Meeting (FSM), Alternative Formulation Briefing (AFB) and other technical review conferences. Develop the PMP, which will guide post-feasibility studies and project construction.
- Develop a critical path network, which displays the interrelationships between feasibility and post-feasibility tasks and activities, milestones, durations, and costs.
- Prepare project correspondence, which may or may not be directly related to the execution or completion of the feasibility study phase.

During the feasibility study phase, Programs Management Branch will update the monthly funds utilization report and provide it to the PM. A report will also be produced which compares actual costs to the current year schedule. This report reflects expenditures for each task for the current Federal fiscal year. At the end of each fiscal year, a final funds report will be issued reflecting effectiveness of expenditures and obligations for the fiscal year as compared to the scheduled. Programs Management Branch will provide inflation factors for task midpoints in coordination with the PM. Programs Management Branch will provide the oversight for preparing Congressional budget submissions and development of the manpower resources required for future years.

ACTIVITY	DAYS			TOTAL COST
Attend PDT and other monthly meetings	66			\$66,000
Monitor Obligations and Expenditures	88			88,000
Identify & Mitigate Cost & Schedule Issues	44			44,000
PM Reports and PRB Meeting Briefings	88			88,000
Review of Project Documents	20			20,000
Review Budgeting and Programming Documents	120			120,000
Participate in FSM and AFB	10			10,000
Project Correspondence	20			20,000
Develop PMP & Update As Needed	20			20,000
Provide Input for Baseline Cost Estimate	5			5,000
Coordinate Report Prep. & Review with Project Sponsor	10			10,000
Supervisory and Administrative Costs	40			40,000
P2 Support by PMC Solutions	44			44,000
<b>Total</b>				<b>\$575,000</b>

The local sponsor will provide \$135,000 of these costs as in-kind services, with \$440,000 being Federal costs. Allocation by activity will be determined annually.

## PLANNING AND ENVIRONMENTAL BRANCH

### STUDY SUPERVISION

The PL shall ensure that the feasibility study accomplishes the established goals at the anticipated rate, and that all items in the PMP are followed. Study management includes regular periodic meetings with technical elements to review progress; preparation of study-related correspondence; coordinating with all Federal, State, and local agencies to ensure that each has been informed of all proposed plans of improvement as well as the progress of the study; government and Project Sponsor participation in all PDT meetings and Executive Committee meetings; and providing guidance and support as required to insure that all questions have been answered and all problems have been addressed from the start of the study to the submittal of the final Feasibility Report to the Office of Management and Budget (OMB).

Overall study management will include preparation of study-related correspondence. This shall include response to all public, government, special interest groups, Congressional, or other inquiries directly or indirectly relating to study activities or the study area.

During the study period, the PDT shall conduct monthly meetings to review and discuss progress, problems, and related issues. Work conferences will be held in the study area at a location mutually agreed upon by USACE and the Project Sponsor or at the Galveston District

Office as the need so arises. All payments by the Project Sponsor for transportation, subsistence, and lodging for trips to Galveston shall be considered a part of study management cost and shall be included in the annual and final accounting of study cost. A written record of all conferences, meetings, discussions, verbal decisions, telephone conversation on matters relevant to the work shall be made by the members of the PDT. These records shall be numbered sequentially and shall fully identify persons participating, subjects discussed, and conclusions reached, if any. Copies of these records shall be submitted to the Project Sponsor for review and confirmation.

Coordination will be maintained with all Federal, State, and local agencies to ensure that their input has been considered during the development of all proposed plans of improvement and to keep them informed on the progress of the study. Coordination with other agencies may require on-site visits and/or correspondence with Federal, State, and local government agencies, institutions, businesses or groups with expertise, responsibilities, or resources related to commercial navigation, environmental resources, or other areas of interest in the study area.

<b>Overall Study Supervision</b>	<b>Days</b>	<b>Total Cost</b>
Correspondence	3	\$3,000
Coordination	27	27,000
Budget and Funding Reviews	12	12,000
Scheduling	8	8,000
Review Budgeting and Programming Documents	5	5,000
Participate in FSM and AFB		
Project Correspondence		
PDT Meetings, Preparation, & Attendance	40	40,000
<b>Total</b>	<b>95</b>	<b>\$95,000</b>

## REVIEW MEETINGS AND CONFERENCES

Review meetings and conferences will be arranged and conducted by the PL to maintain support and guidance from higher review levels within the USACE. Two issue resolution conferences are mandatory, the FSM and the AFB. A FSM will be held at the end of the survey period when the initial screening of alternative plans has taken place to assure that the appropriate technical criteria were used to formulate, design, and evaluate the alternatives. Immediately prior to release of the Draft Feasibility Report and environmental documentation to the public, an AFB will be held to resolve policy issues relating to plan selection and to determine whether additional work is needed before the report is released to the public. A Feasibility Review Conference (FRC) is held, if necessary. The requirement for the FRC may be waived if no major issues are addressed at the AFB. This PMP assumes the FRC will be waived. The work to be performed for meetings and conferences shall include preparation of conference materials; arranging the location, schedule, and agenda; attending and participating in the conferences; briefing the individuals involved; and preparing a memorandum of the results. Contractor support will be required to assist district personnel with preparing for and conducting public meetings and conferences. An independent technical review (ITR) for National Environmental Policy Act (NEPA) documentation of the project will be conducted. Currently, it is proposed

that the ITR be conducted by the South Atlantic Division Deep Draft Channel Center of Expertise located in Mobile, Alabama.

<b>Review Meetings and Conference Costs</b>	<b>Days</b>	<b>Total Cost</b>
<b><i>Initial Plan Formulation</i></b>		
Prepare for FSM	10	\$10,000
FSM	2	2,000
ITR	MIPR	10,000
Documentation of FSM	5	5,000
<b><i>Plan Formulation</i></b>		
IPR Prep and Attendance	10	10,000
IPR	5	5,000
ITR	MIPR	10,000
Prepare for AFB	2	2,000
<b><i>Final Plan Formulation</i></b>		
Prepare for AFB	7	7,000
AFB	20	20,000
Documentation of AFB	7	7,000
ITR Prep and Attendance	4	4,000
ITR	MIPR	20,000
Prepare PBM Compliance Docs	2	2,000
<b>Total</b>		<b>\$114,000</b>

The local sponsor will provide \$40,000 of these costs as in-kind services, with \$74,000 being Federal costs. Allocation by activity will be determined annually.

#### **PUBLIC INVOLVEMENT AND COORDINATION**

The PL will implement Public Involvement that will include programs necessary to represent the public's views and to identify problem areas for further studies. This will be accomplished through public notices, public workshops, assessments of project users views, and through public distribution of these results.

Public involvement is necessary to ensure that the feasibility study is responsive to the needs and concerns of the public. The objectives of public involvement are to provide information about the study to the public; to learn the public's desires, needs, and concerns and make them known to decision makers; to provide for consultation with the public before decisions are reached; and to take into account the public's views in reaching decisions. The public involvement program will primarily consist of the following activities.

Public notices will be prepared and issued at the times presented below. This activity will require the preparation and maintenance of a mailing list of all agencies, organizations, media, and individuals known to be interested in the project. The USACE will prepare and mail the

notices and maintain the mailing list throughout the feasibility study. The Project Sponsor shall receive credit for reviewing each notice and assisting in keeping the mailing list current.

- At the beginning of the feasibility study, a notice will be prepared which will state that the feasibility study is beginning, present the findings of the reconnaissance study, and solicit additional information on the water resources problems that need solved.
- Prior to each public meeting or public workshop meeting, a notice will be prepared which presents the current status of the study; announces the date, time, and location of the meeting; discloses the purpose of the meeting and the information being sought; and provides an alternate means to submit the information.
- Following each meeting or public workshop, a notice will be prepared which will present a summary of the meeting and the information gathered.
- When the draft Feasibility Report and EIS is filed with the Environmental Protection Agency (EPA) and circulated for field level coordination, a notice will be prepared which will present the findings of the feasibility study, advise the public of the availability of the draft Feasibility Report and EIS, and disclose the time frame for public review and comment on these documents.
- When the feasibility study has been completed and the final Feasibility Report forwarded for Washington level review, a notice will be prepared which will present the recommended plan of improvement and advise the public of the next public review period.
- Other notices will be prepared to provide study updates as needed. The study cost estimate is based on the assumption that two such notices would be required.

A public meeting will be held immediately prior to formulating the final array of alternative plans. The purpose of this public meeting will be to obtain public input so that the plan, which is ultimately selected for implementation will include mitigation measures and have a high potential for public support. The USACE will prepare exhibits and other visual aids and provide sufficient personnel to adequately conduct the meeting. The Project Sponsor shall receive credit for providing the facilities for the meeting and for preparing for and attending the meeting. Contractor support may be required to prepare for and support USACE personnel with public involvement and coordination.

The Port will also undertake a very proactive effort to ensure that the maritime community is fully aware of the proposed project. This type of outreach will be especially valuable very early in the development of the Port's strategic plan. This will be accomplished by a mix of formal meetings, informal meetings, publications, etc.

<b>Public involvement and Coordination</b>	<b>Days</b>	<b>Total Cost</b>
<i>Initial Plan Formulation</i>		
Mailing List Maintenance	5	\$5,000
Public Involvement Plan	5	5,000

Public Scoping Meeting	20	20,000
<b><i>Plan Formulation</i></b>		
Public Meetings	5	5,000
Public Notices/ Mailings	5	5,000
Agency Meetings	5	5,000
<b><i>Final Plan Formulation</i></b>		
Public /Agency Meetings	5	5,000
Public Notices/Mailings	5	5,000
<b>Total</b>		<b>\$55,000</b>

The local sponsor will provide \$45,000 of these costs as in-kind services, with \$10,000 being Federal costs. Allocation by activity will be determined annually.

#### PLAN FORMULATION AND EVALUATION

The PL will lead the PDT toward complete plan formulation. Plan formulation is the process whereby project measures (specific project features) are conceived, developed, and evaluated to satisfy specific objectives, and then combinations of measures are evaluated to develop comprehensive alternative plans. The recommended plan may be the Locally Preferred Plan (LPP) even though the NED has not been determined. The LPP must have greater net excess benefits than smaller scale plans and formulation must analyze enough alternatives to insure that net excess benefits do not maximize prior to the LPP. Once the NED, or if necessary the LPP, has been identified, detailed economic analyses, cost allocations, and cost apportionments will be made.

The alternative plans shall be formulated in a systematic manner to ensure that all reasonable alternatives have been addressed and that the optimum plan has been identified. An alternative plan shall consist of a system of structural and/or nonstructural measures, strategies, or programs formulated to alleviate the navigational inefficiencies of the existing project. Each alternative plan shall include environmentally compatible design measures to mitigate adverse effects on fish and wildlife resources. The alternative plan, which reasonably maximizes NED benefits, shall be identified as the NED plan. If the Project Sponsor does not support the NED plan, the LPP will also be identified and presented in the Feasibility Report.

Alternative plans shall be formulated in consideration of four criteria: completeness, effectiveness, efficiency, and acceptability. Completeness is the extent to which a given alternative plan provides and accounts for all necessary investments or other actions to ensure the realization of the planned effects. Effectiveness is the extent to which an alternative plan solves the specific problems and achieves the specified opportunities. Efficiency is the extent to which an alternative plan is the most cost effective means of solving the navigation problems and realizing opportunities consistent with protecting the nation's environment. Acceptability is the workability of the alternative plan with respect to acceptance by State, local entities and the public and compatibility with existing laws, regulations, and public policies. It is anticipated that

ten channel enlargement plans will be formulated and evaluated in the initial array of alternatives.

<b>Plan Formulation and Evaluation</b>	<b>Days</b>	<b>Fed Cost</b>	<b>Non-Fed Cost</b>	<b>Total Cost</b>
<b><i>Initial Plan Formulation</i></b>				
Problem Identification	20	\$20,000		
Formulation of W/O Project Conditions	20	20,000		
<b><i>Plan Formulation</i></b>				
Alternative Plans	20	20,000		
Optimization of Plans	20	20,000		
Selected Plans	10	10,000		
<b><i>Final Plan Formulation</i></b>				
Cost Allocation & Apportionment	20	20,000		
<b>Total</b>		<b>\$110,000</b>	<b>\$40,000</b>	<b>\$150,000</b>

The local sponsor will provide \$40,000 of these costs as in-kind services, with \$110,000 being Federal costs. Allocation by activity will be determined annually.

#### REPORT PREPARATION

Report preparation will include preparation of internal draft reports, advance draft report, draft report, and final report. The report submittal package will consist of the final Feasibility Report with EIS and Appendices, Supporting Documentation, draft Division Engineer's Public Notice, Draft Chief of Engineer's Report, and Authorization Fact Sheet and slides.

The PL will be responsible for report writing comprised of original text and text provided by other study elements. The final documentation for the study will be in two parts, the Feasibility Report and the Supporting Documentation. The Feasibility Report shall consist of the main report, EIS, and Appendices, and will be prepared in compliance with the requirements of ER 1105-2-100. The report shall be a complete decision making document and as such shall include a complete presentation of plan formulation. The report shall be based on all studies and investigations conducted and from published reports applicable to the study area. The main report shall be direct, concise, and written in an easy to understand style using ample graphics, illustrations, and photographs. The main report shall also include the study findings and recommendations. The appendices will contain materials required for coordination of the Feasibility Report and EIS. These appendices generally contain discussions on the following subjects if too lengthy for the main report: Detailed Plan Formulation, Threatened and Endangered Species Survey, Section 404(b)(1) Evaluation, Public Involvement, Interagency Correspondence, and Public-Views and Responses. The Supporting Documentation shall contain technical reports written for technical reviewers. The length and detail of each technical report shall be sufficient to cover all aspects of the subject. Graphics and other illustrations shall be used to facilitate the presentation. The supporting documentation will generally contain sections on: Problem Identification; Engineering Investigations, Designs, and Cost Estimates;



Natural Resources; Cultural Resources; and Social and Economic Profile and Impact Assessment.

<b>Report Preparation</b>	<b>Days</b>	<b>Fed Cost</b>	<b>Non-Fed Cost</b>	<b>Total Cost</b>
<b><i>Final Plan Formulation</i></b>				
Report Writing	40	40,000		
Report Compliance Review/Approval	20	20,000		
Print Advance Draft Report & EIS	5	5,000		
Print Final Report/Record of Decision	10	10,000		
Prepare Submittal Package	5	5,000		
<b><i>Report Preparation and Approval</i></b>				
Revise Draft Report after AFB	10	10,000		
Print Draft Report	5	5,000		
Internal Review/Respond to Comments on Draft Report	20	20,000		
Chief's Report	5	5,000		
<b>Total</b>		<b>\$120,000</b>	<b>\$20,000</b>	<b>\$140,000</b>

The local sponsor will provide \$20,000 of these costs as in-kind services, with \$120,000 being Federal costs. Allocation by activity will be determined annually.

#### TECHNICAL REVIEW

A team of corresponding functions (Environmental, Planning and Economics) will be formed to review the PMP before it is sent out for independent technical review. Each discipline involved in the Feasibility study will have a coordinating counterpart on the review team. The review team will meet with PDT members on a quarterly basis. These quarterly meetings will be documented as required by ER 1165-2-203. Coordination throughout the study will be accomplished through individual contact between the PDT and the review team.

<b>Technical Review Team</b>	<b>Days</b>	<b>Fed Cost</b>	<b>Non-Fed Cost</b>	<b>Total Cost</b>
<b><i>Initial Plan Formulation</i></b>				
Quarterly Meetings	2	\$2,000		
Technical Coordination	10	10,000		
Documentation	3	3,000		
<b><i>Plan Formulation</i></b>				
Quarterly Meetings	6	6,000		
Technical Coordination	10	10,000		
Documentation	3	3,000		
<b><i>Final Plan Formulation</i></b>				
Quarterly Meetings	6	6,000		
Technical Coordination	10	10,000		
Documentation	5	5,000		
<b>Total</b>		<b>\$55,000</b>	<b>\$20,000</b>	<b>\$75,000</b>

The local sponsor will provide \$20,000 of these costs as in-kind services, with \$55,000 being Federal costs. Allocation by activity will be determined annually.

## **ECONOMIC AND SOCIAL ANALYSIS STUDIES**

### **EVALUATION OF COMMERCIAL NAVIGATION BENEFITS**

The economic studies conducted during the feasibility study phase will evaluate the transportation savings benefits associated with deepening and widening the existing Brazos Island Harbor deep-draft navigation channel. The methods for analyzing the transportation savings are documented in ER 1105-2-100, "Guidance for Conducting Civil Works Planning Studies" (December 1990) and the "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" (P&G) (March 10, 1983). The feasibility analysis will include risk and uncertainty studies. The economic analyses performed for the feasibility study will be presented in a technical appendix and summarized in the feasibility report. The major tasks for the economic analyses, and costs associated with these tasks, are traffic data aggregation and analysis, transportation cost analysis and computation for various alternative channel sizes and NED benefit analysis. Navigation benefits will be evaluated in relation to vessel operating cost. The benefits associated with reductions in vessel operating costs are a product of channel deepening and widening will be estimated based on improved utilization of the existing and future without and with project fleets.

### **PRELIMINARY ANALYSIS**

The study area's commodity specific historical tonnage and historical vessel fleet data will be compiled from the Waterborne Commerce Statistical Center's (WCSC) publications and databases; "Lloyds Vessel Register"; the "World Port Index"; waterway users; pilots associations; and the U.S. Coast Guard (USCG). If supplemental fleet data are available from sponsor, these data will be utilized.

The economist will work with the PDT and the non-Federal sponsor to identify the channel depth alternatives. As part of the preliminary screening or initial screening phase, the economist will evaluate channel deepening benefits and may prepare an initial analysis of widening benefits; however, the primary focus of the initial screening will be to focus on depth optimization. The detailed tonnage records compiled from the WCSC databases and waterway users will be aggregated if necessary by trade route and vessel size and cross-referenced with the "Lloyds Vessel Register" and the "World Port Index". The data will initially be assessed to determine the existence of historical trends. The output of the depth analysis will be compared to preliminary construction costs obtained from the Engineering Branch, Cost Estimating Section. The results of the initial analysis, along with the benefit-cost ratios will be presented in a memo report.

During the preliminary analysis, the economist will work with the Hydrology and Hydraulics Section to identify the design vessels to be used for the ship simulation study. The design vessel determination will be made based on input from the non-Federal sponsor and the economist's analysis of the recent historical traffic data as well as review of trend data. The design vessel study will be based on an analysis of the historic tonnage and origin-destination data, and interpretation of these data in relationship to long-term trends and published forecasts. This

study must be completed prior to initiation of the engineering design studies because the design vessel selection is critical to the appropriate configuration of the channel. The design vessel determinations by channel alternative will be summarized and provided to Engineering Division in a memorandum for record.

## TRAFFIC DATA ANALYSIS

The study area's commodity specific historical tonnage and associated vessel and trading port data will be compiled from the Waterborne Commerce Statistical Center's (WCSC) publications and databases; the "Lloyds Vessel Register"; the "World Port Index"; waterway users; pilots associations; and the U.S. Coast Guard (USCG). If supplemental fleet data are available from the Project Sponsor, these data will also be utilized. The tonnage data, which will be displayed in the feasibility report, will be for the most recent 10-year period.

The detailed tonnage records compiled from the WCSC databases and waterway users will be aggregated by trade route and vessel size and cross-referenced with the "Lloyds Vessel Register" and the "World Port Index". The data will initially be assessed to determine the existence of historical trends. The trade route and fleet aggregations will be used to identify constraints at the foreign origin or destination port and, henceforth, utilized to identify what percentage of existing tonnage could benefit from increases in the existing channel dimensions. The historical tonnage and fleet data will provide the basis from which to make tonnage, trade route, and fleet forecasts. The historical tonnage and fleet data will be analyzed in relationship to Data Resources' Inc. (DRI) U.S. Gulf Coast forecasts to determine if application of DRI's tonnage and fleet forecasts are appropriate. If the study area's historical distributions are correlated with the Gulf Coast, DRI's tonnage and fleet forecasts will be applied. Other tonnage forecasts, such as the U. S. Department of Energy, U.S. Department of Agriculture, and the U.S. Department of Commerce forecasts, will also be evaluated to determine their appropriateness as tonnage forecasting tools. Interviews with vessel operators will be used to establish and verify long-term commodity and vessel fleet trends and changes. The interviews will primarily be conducted by telephone. The traffic data aggregation task is composed of three major subtasks. These subtasks include the origin-destination studies, commodity and vessel fleet forecasts, and design vessel studies.

## ORIGIN-DESTINATION STUDIES

The origin-destination data will be organized by commodity, trade route, shipping method, vessel class interval, and channel segment. The organization of the data will likely be based on DRI's U.S. Gulf Coast trade route and fleet forecasts. Data for the existing condition will be obtained from the WCSC detailed records and telephone and/or personal interviews. The 1992 to 2002 waterborne commerce statistics obtained for development of the reconnaissance report will again be utilized for the feasibility report along with the most recent data available. The reconnaissance analyses showed that the commodities being transported through the existing channel were primarily bulk cargo, such as chemicals, LPG, clays, petroleum, grain, agricultural products, sulfur, steel, bulk minerals, iron ore, fertilizers and aluminum. Brownsville is an important in-transit port for trade to and from Mexico and, to a smaller extent, Brazil. Determination of the future tonnage groups anticipated to be limited by the existing channel dimensions will be based on the commodity specific and vessel specific origin-destination analysis of historical commerce in relationship to forecast trends. The historic tonnage base data

will be analyzed in relationship to vessel characteristic and port depth data extracted from the "Lloyds Vessel Register" and the "World Port Index". Future trends will be determined from analyses of published trends and consultations with shipping experts. The output of the origin-destination analyses will be utilized to identify trade route constraints. The origin-destination studies will also influence the minimum and maximum vessel sizes for the existing and future conditions.

#### FORECAST POTENTIAL CHANNEL TRAFFIC BY COMMODITY VESSEL CLASS

Commodity and fleet forecasts from the study year until the end of the project life will be prepared. The forecasts will be presented in time intervals not to exceed 10 years and will relate the traffic base to some type of index over time. These commodity and fleet forecasts will be based on (a) interviews of relevant shippers, carriers, and port officials; (b) opinions of commodity consultants and experts, and (c) historical flow patterns. Projections will then be constructed on the basis of the results of these studies.

#### DESIGN VESSEL STUDIES

The design vessel studies will be based on analysis of the historic tonnage and origin-destination data, and interpretation of these data in relationship to long-term trends and published forecasts. This subtask, along with the preceding subtasks, needs to be completed prior to initiation of the engineering design studies because the design vessel selection is critical to the appropriate configuration of the channel. The design vessel determinations by channel alternative will be summarized and provided to Engineering Division in a memorandum for record.

Analyses conducted as part of the reconnaissance report shows that deep draft (45 to 63 feet) offshore rigs that are currently located in the Gulf of Mexico near the BIH Channel have to be partially disassembled in order to travel through the channel to receive scheduled maintenance. The proposed channel deepening and widening alternatives identified in the reconnaissance report would, therefore, allow a larger percentage of the existing and proposed offshore rigs to call on the BIH Channel. The interviews and literature searches, which will be conducted for the traffic analysis and origin-destination tasks, will be utilized in the design vessel subtask. Recent trends towards wider beam vessels will also be researched as part of this subtask. These analyses will be used in the formulation of the without and with project future fleet distributions.

#### MULTI-PORT ANALYSIS

A contract for a multiport analysis will be prepared early in the study. The multiport analysis will evaluate all factors that might influence a demand schedule; e.g., impact of uncertainty in the use of the channel; ownership of vessels and special equipment; level of service; inventory and production processes. A multipart assessment will be made as part of this step. The multiport assessment will be used to determine how other navigation improvements, such as the Corpus Christi Project, will affect future tonnage levels for the BIH project.

#### VESSEL TRIP ANALYSIS

The widening and casualty reduction assessments will require the transformation of the tonnage data into trip data. The data preparations needed for these assessments are outlined as follows:

#### CHANNEL WIDENING DATA INPUT

The vessel class specific tonnage forecasts generated from the commodity and trade route analyses will be used to calculate the number of trips for the without and with project conditions. Determination of the volume of tonnage per vessel trip and the annual number of vessel trips for the without and with project conditions will be made based on existing practices, vessel cargo capacities, channel dimensions, and dock constraints along the BIH Channel as well as the foreign origin or destination ports. After these analyses are completed, the vessel trip data will be incorporated into a vessel simulation model. The output of the model will be used to calculate transit times for the without and with project conditions. Transit times for the existing condition will be established based on actual transit statistics obtained from Brownsville Pilots vessel logs. The log data will be used to model the existing distribution of vessel movements by vessel size as well as the interaction of vessel movements within the channel system. Future without and with project transit times will be extrapolated from the existing database based on the relationship between existing transit times, commodity mixes, trade routes, fleet distributions, and channel constraints.

#### CASUALTY ASSESSMENT INPUT

Historical casualty rates are low for this project; however, should initial discussions with the USCG personnel indicate that the proposed project improvements could further reduce vessel casualties; benefits will be assessed for casualty reductions. Project area casualty statistics for the most recent 10-year period will be obtained from the USCG. The casualty reduction benefits will be based on estimations made by vessel operators and navigation experts concerning potential reductions in casualty frequencies due to channel widening. This procedure was used to calculate the casualty reduction benefits presented in the Houston-Galveston Channels feasibility and limited reevaluation reports. Therefore, vessel operator's and navigation expert's opinions will be obtained through a workshop setting. The Corps contractor will do compilation of the casualty data, as will the formulation and presentation of the casualty assessment workshop.

#### TRANSPORTATION COST ANALYSES

Transportation costs will be calculated for the without and with project conditions. The transportation costs and associated savings will be presented by channel design alternative. Included in the transportation cost computations are the origins to destination costs, including handling, transfer, and demurrage costs. The deepening benefits will be calculated based on the net change in the cost per ton transportation costs among the channel design alternatives. Evaluation of the widening benefits will be made based on the annual transportation throughput costs for the without and with project conditions. The casualty reduction benefits will be estimated based on the reduction in casualty costs associated with the project designs and associated fleets. Two arrays will be constructed representing the without and with project conditions. The difference between the arrays will reflect the difference in transportation costs and any gains in efficiencies between the without and with project conditions.

## COMPUTATION OF THE NED BENEFITS

Once the transportation costs for the without and with project conditions are known, total NED navigation benefits can be computed at the applicable discount rate.

## RISK AND UNCERTAINTY ANALYSIS

The parameters, which undergo risk and uncertainty analysis, are not currently defined for deep draft navigation projects. Risk and uncertainty, however, will likely affect variables associated with commodity forecasts, fleet distributions, shipping methods, and construction of alternative projects. Four subtasks have been defined based on these variables. The work associated with these subtasks is outlined as follows.

### **Forecast Potential Channel Traffic by Commodity, Trade Route, and Vessel Class.**

The commodity, trade route, and vessel class forecasts are likely to be conducted as usual but probability distributions of projections will likely be included to demonstrate risk and uncertainty. These may be normal distributions, triangular distributions, or others as required. Confidence levels will also be part of this analysis.

### **Transportation Costs.**

These will likely undergo the same type of analysis as commodity, trade route, and vessel class forecasts.

## FINANCIAL ANALYSIS

The analysis of financial capability is to determine the ability of the Project Sponsor to finance their share of the project construction cost. The specific guidance associated with the financial analysis is outlined in ER 1105-2-100. The analysis will be made on the Project Sponsor's financial condition and the return that the Project Sponsor can expect from investing in project construction. A portfolio will be prepared on the Project Sponsor's debts and revenues as they relate to their ability to provide financial support for the recommended project. The analysis will include a description of the Project Sponsor's debt history and current financial condition. The information to be described will include debt history and bond ratings assigned on bonds in the last five years and a list of outstanding debts; e.g. general obligation bonds, revenue bonds, and other debts. Demographic information will be collected to assist in determining the current financial condition of the local Project Sponsor. The demographic information will include: population five years ago and present, annual rate of change in population, personal income for population within study area, amount of property taxes collected annually, other revenues, operating expenses, debt service payments, real property tax collection rate, assessed value of real property, current impact statement ratio, full market value of real property, and property tax revenues as a percentage of full market value of real property. The financial condition will be determined from the following indicators: current surplus of funds as a percentage of total current expenditures, real property tax collection rate, property tax revenues as a percentage of full market value of real property, overall net debt outstanding as a percentage of personal

income, direct net debt per capita, overall net debt per capita, percent direct net debt outstanding due within next five years, operating ratio, and coverage ratio. This financial analysis, which will be prepared separately, will be submitted with the Project Cooperation Agreement. The financial analysis will be completed during the feasibility phase.

<b>Socioeconomic Costs</b>	<b>Days</b>	<b>Total</b>
<b>Initial Plan Formulation</b>		
Socioeconomic Preliminary Analysis		
Compile Historical Tonnage	10	
Compile Historical Vessel Fleet Data	10	
Identify Alternative Channel Depths	1	
Identify Design Vessels	10	
Determine Maximum Vessel Size by Reach	2	
Data Analysis	15	
Identify Alternative Channel Width Based on Design Criteria		
Locally Preferred Plan	1	
Design Criteria Suggested Alternative	1	
Initial Benefit-Cost Analysis	3	
<i>Subtotal</i>		\$53,000
<b>Plan Formation</b>		
Transportation Cost Analysis		
Compile Vessel Operating Cost Data	5	
Identify Operator Cost by Major Vessel Group	3	
Prepare Comm. Specific Trade Route Data and Fleets	20	
Incorporate Commodity Cost with Operating Groups	15	
Data Analysis	10	
Deep-Draft Analysis of Channel Depth Alternatives		
Determine Trade Route Miles by Vessel/Commodity	10	
Calculate Transportation Cost/Route	25	
Data Analysis	5	
Widening Analysis for Initial Screening		
Distribution of Vessel Trips by Vessel Beam	15	
Incorporate Tow Trip Data	5	
Benefit Cost Analysis	3	
<i>Subtotal</i>		\$116,000
<b>Final Plan Formulation</b>		
Calculate Delay Cost for W/O Project Condition		
Transportation Cost for Existing Condition	20	
Analyze Findings	5	
Feasibility Report		
In-Progress Review and/or FSM Report	15	
Feasibility Scoping Meeting	5	
Initiate Multiport Analysis		
Prepare Contract and Coordinate with Contractor	15	
Contract Work	15	
Tonnage Forecasts		
Analysis of Historic Data/Socioeconomic Indicators	15	
Prepare Commodity Specific Forecasts	40	
Finalize Commodity Specific Data	15	
Data Analysis	15	
Vessel Fleet Forecasts		
Prepare Commodity Specific Fleet Forecasts	15	

Identify Channel/Trade Route Constraints	5	
Commodity Spec. Forecasts for other Deep Draft	15	
Commodity Spec. Forecasts for Inland Waterway	5	
Prepare Summary of Total Vessel Trips by Forecast Period		
Deep Draft Vessel Trips, Commodity Specific	15	
Shallow Draft Vessel Trips, Inland Waterway	5	
Total Vessel Trips	5	
Data Analysis	10	
Benefit-Cost Analysis		
Plan Optimization without Widening	5	
Plan Summary without Widening	5	
<i>Subtotal</i>		\$245,000
<b>Report Preparation and Approval</b>		
Prepare Economic Appendix		
Initiate Trans. Benefit Analysis Report & Tables Preparation	40	
Incorporate Final Traffic Forecast	20	
Obtain Construction Cost from Cost Engineering	1	
Plan Optimization /NED Calculations	10	
Report Finalization and Review	15	
Financial Assessment		
Evaluate Plan and Summarize Findings	15	
Complete Write-up	10	
<b>Other Items</b>		
Meeting, Conference Travel (2 trips)	5	
Respond to ITR and HQ Review Comments	10	
Internal Review and IPR Replies/Responses	10	
Incorporate Updates, Data Revisions	10	
In-house Socioeconomic Review	5	
<i>Subtotal</i>		151,000
<b>Total</b>		<b>\$565,000</b>

The local sponsor will provide \$80,000 of these costs as in-kind services, with \$485,000 being Federal costs. Allocation by activity will be determined annually.

#### ENVIRONMENTAL SECTION STUDIES

The project area is located on the lower Texas coast and includes the existing Brazos Island Harbor (BIH) Channel (also known as the Brownsville Ship Channel) which is a deep-draft navigation channel that provides Brownville, Texas, access to the Gulf of Mexico. The channel bisects the lower portion of the Laguna Madre, which is a complex hyper-saline ecosystem that contains critical marine resources.

It is assumed that seven (7) alternatives, including a no action plan, will be evaluated. Approximately six (6)-channel enlargement plans and/or improvements to the BIH Channel will be evaluated during the feasibility study, including: 1) deepening the channel to 45 feet; 2) deepening the channel to 50 feet; 3) deepening the channel to 55 feet; 4) deepening the channel to 45 feet and widen channel bottom by an additional 100 feet; 5) deepening the channel to 50 feet and widen the channel bottom by an additional 100 feet, and 6) deepening the channel to 55 feet and widen the channel bottom by an additional 100 feet



Environmental studies will be performed in accordance with the National Environmental Policy Act (NEPA), ER 1105-2-100, ER 200-2-2, and other applicable laws, statutes, Executive Orders, and regulations. A NEPA document will be prepared to accompany the Feasibility Report. NEPA documentation will be coordinated with state and Federal environmental agencies and the public.

The following studies will be performed to determine the environmental effects of the project and the study results will be documented in the Feasibility Report and Environmental Impact Statement (EIS). Early tasks will involve gathering baseline data on the study area and resources to be targeted for restoration (mostly literature searches, but some field work). Subsequent tasks will be performed after alternatives are more clearly defined and will include refining alternatives, completing resource descriptions, and quantifying changes in targeted resources/habitats. These efforts will be conducted primarily through contracts administered by USACE staff, as identified below. In-house efforts include collection of available data, development of scopes of work, coordination with the Interagency Coordination Team (ICT), review of draft documents, field trips to evaluate alternatives and coordinate with the resource agencies, and preparing the documentation for the Feasibility Report and EIS.

Estimates assume an approximate 48-month feasibility study with 12 months spent in initial plan formulation, 12 months in plan formulation, 12 months in final plan formulation, and 8 months in the report preparation and approval phase.

Cost estimates include both in-house and contracted resources required to prepare the EIS and Record of Decision (ROD), and to prepare sections as needed for the feasibility report. Also included is time for plan formulation, study team meetings, site visits and travel costs. Contract support & report review costs include labor estimates to develop scopes of work, to negotiate, prepare and manage contracts, and review to draft documents and prepare comments.

## **NEPA DOCUMENT PREPARATION AND PLAN FORMULATION**

The environmental effort for this project will be conducted under the Planning Formulation phase. A document will be prepared, as required by NEPA that evaluates the impacts of project alternatives on the human environment. The required NEPA compliance document will describe all activities leading to the assessment of environmental impacts related to the various measures being investigated. NEPA documentation for this study will consist of an EIS and ROD.

### **Assumptions:**

NEPA compliance documentation will consist of an EIS and ROD. These documents will be prepared utilizing an environmental contractor. A draft and final EIS will be produced at the times required for feasibility reports of commensurate completeness. The EIS will be produced and distributed by USACE staff or its contractor.

Two major contracts will be awarded to prepare NEPA compliance documents. The first will be to prepare all sections of the environmental baseline report during initial plan formulation. The second contract will be to prepare the impact sections and other compliance documents (e.g. Coastal Consistency determination, Biological Assessment and Biological Opinion, etc.) for the draft and final EIS and the ROD. This second contract will be awarded during the plan formulation phase, but work will continue on the contract through final plan formulation and report preparation and approval. Minor contracts will be awarded for some sections of the EIS involving elements that require specialized analysis.

The environmental team will attend PDT meetings to coordinate progress on project development and maintain communication with the other PDT members. The team members will participate in the PDT process to assist in initial and final plan formulation leading to the selected plan, and include environmental and cultural resource evaluations as necessary. The environmental team will provide information to the team in a timely manner. PDT meetings are scheduled periodically and other meetings, as necessary, will be held to develop and complete the project plans. Based on the project schedule, there will be 48 PDT meetings (i.e. approximately one meeting per month).

Representatives from state and Federal resource agencies including, the United States Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), Texas Parks and Wildlife (TPWD), Texas Commission on Environmental Quality (TCEQ), and Environmental Protection Agency (EPA) will be coordinated with during project development to reduce project impacts on the environment and alleviate any concerns about mitigation requirements.

It is assumed that an ICT will be established to address environmental issues and concerns raised by the proposed project. The ICT will advise the Galveston District in developing appropriate environmental studies to fully address concerns, oversee the scope and performance of these studies, and review and approve resulting reports. The ICT will also participate in the impact analysis of alternative construction and placement plans. The ICT would consist of representatives from interested Texas, and Federal resource agencies, the Project Sponsor, and USACE staff. The costs for ICT meeting attendance and coordination include time for travel, for scheduling and coordination of meetings, for preparation of meeting agendas and read-ahead materials, and for preparation and coordination of meeting minutes.

USACE staff will conduct an independent technical review (ITR) for National Environmental Policy Act (NEPA) documentation of the project. The ITR will be conducted by a Corps contractor whose responsibilities will include attending study team and ICT meetings as necessary to become familiar with the project, reviewing study team minutes, attending milestone reviews such as feasibility scoping meetings and alternative formulation briefings, reviewing NEPA documentation, and preparing written comments. Contracting ITR will be the responsibility of the Planning Section. Environmental Section efforts will include assisting preparation of scope of

works, transmittal of project information and documents, and responding to technical comments.

A minimum of three public meetings/workshops is anticipated (NEPA Scoping, final alternatives and selected plan, Draft EIS release). The Environmental Section will provide support to the Planning Section for these meetings, including scope of work preparation, draft report and transcript review, preparation of meeting presentations and handouts, and meeting attendance (including travel).

In-house efforts by USACE staff would include collection and transmittal of available data, development of scopes of work, contract administration, coordination with the ICT, draft and final document comment and review, and resource agency coordination

<b>NEPA Document Preparation (EIS/ROD)</b>	<b>Days</b>	<b>Cost</b>
<b><i>Initial Plan Formulation</i></b>		
Site Visits	2	\$2,000
PDT Attendance & Schedule	6	6,000
ICT Attendance & Coordination	4	4,000
Public Meeting Support (NEPA Scoping)	8	8,000
Baseline Environmental Studies	Contract	125,000
Contract Administration	2	2,000
Review and Comment on Baseline Reports	5	5,000
AFB Preparation/Attendance	2	2,000
<b><i>Plan Formulation</i></b>		
PDT Attendance & Schedule, etc.	12	12,000
ICT Attendance & Coordination	20	20,000
Advance Draft EIS Preparation	Contract	150,000
Contract Administration	2	2,000
<b><i>Final Plan Formulation</i></b>		
Contract support & report review	5	5,000
PDT Attendance & Schedule, etc.	12	12,000
ICT Attendance & Coordination	20	20,000
Public Meeting	6	6,000
Review and Comment on Draft EIS	6	6,000
AFB Preparation/Attendance	2	2,000
Respond to ITR Comments	8	8,000
<b><i>Report Preparation and Approval</i></b>		
PDT Attendance & Schedule, etc.	12	12,000
Review Final Draft EIS	3	3,000
Notice of Availability	1	1,000
Public Meeting	6	6,000
Respond to Comments on Draft EIS	5	5,000
Review Final EIS	5	5,000
Review ROD	2	2,000
PDT Attendance & Schedule, etc.	6	6,000
<b>Total</b>		<b>\$437,000</b>

## **BASELINE ENVIRONMENTAL RESOURCE REPORT**

The office and fieldwork necessary to inventory, describe and evaluate environmental resources in the area of project influence shall be accomplished. The biological elements to be addressed shall include the following: vegetated habitats, vegetation of significance, fish and wildlife resources, and habitats of significance. A literature and data gathering search shall be performed and necessary field studies conducted to describe existing conditions of biological resources of the project area in the EIS:

- 1) Major habitat types within the project area shall be included. Cover or habitat types shall be listed for future analysis. A generalized discussion of habitat types shall be provided and a discussion of the important habitats shall be incorporated.

- 2) Based on aerial photography, literature search, field verifications, or other means, a discussion of any rare, remnant or unique species, specimens, stands, or communities; threatened or endangered species; virgin stands; climax communities; vegetation types unusual to the region; and habitats of important native plants shall be provided. Any floral resources that should be preserved, enhanced, protected or approached with care shall be indicated. A listing of plants officially recognized or proposed by the NMFS, Department of Interior (DOI), USFWS and the TPWD as threatened and endangered plants reported for the area shall be provided. Additionally, a detailed discussion shall be made of the relative value of habitat types identified as feeding, breeding, nesting, nursery areas, cover, resting, and as sources of nutrients for fish and wildlife.
- 3) The major mammal, bird, reptile and amphibian species groups that characterize each habitat type shall be described. This information shall be obtained primarily from the literature and other available sources and supplemented with onsite field investigations. Species of commercial and recreational importance shall be described, and their economic value shall be quantified utilizing TPWD and USFWS data and other available information.
- 4) Aquatic/marine biological resources that will be affected by the project shall be described. Primary concerns center around dredging and placement impacts on bay bottom, submerged aquatic vegetation and wetlands if existing confined placement areas in the marshes are expanded or new confined placement areas are needed. USACE staff will identify and quantify these resources to assess the affects from dredging and placement activities. Fish, macro-invertebrates, and oyster resources within the study area shall be discussed, and available data from existing literature and NMFS, USFWS, and TPWD survey reports on commercial fisheries shall be presented.

Costs for preparing the Baseline Environmental Resource Inventory Report and related impacts sections on biological resources are captured in the contract costs for Baseline Environmental Studies and EIS Preparation under initial plan formulation and plan formulation phases, of the section entitled NEPA Document Preparation and Plan Formulation.

**Baseline Environmental Resource Inventory**

<b><u>Report</u></b>	<b><u>Days</u></b>	<b><u>Cost</u></b>
<i>Initial Plan Formulation</i>		
Review Draft Report & Comment	5	\$5,000
<i>Plan Formulation</i>	No Activity	
<i>Final Plan Formulation</i>	No Activity	
<i>Report Preparation and Approval</i>	No Activity	
<b>Total</b>		<b>\$5,000</b>

## **TERRESTRIAL, AQUATIC AND MARINE BIOLOGICAL RESOURCES**

Concerns exist about wave-induced erosion along the navigation channel banks, increased salinity intrusion into brackish-freshwater wetlands, and prevention of sediment nourishment in nearby wetlands. USACE staff will document habitat type around existing and any proposed new upland sites to determine the impacts of expanding or constructing new upland sites. Habitat losses will be quantified and discussed in the EIS in terms of impacts on fish and wildlife communities. Project impacts to wetlands predicted by salinity, circulation and sediment transport models will be described and habitat losses quantified, if possible.

A Habitat Assessment Workgroup of the ICT may be formed to identify, quantify and assesses baseline project conditions and without and with project losses or gains for habitats that are likely to be impacted by the navigation project and require mitigation or that have restoration potential using methods described in the following entitled "Ecosystem Restoration and Beneficial Uses" and "Mitigation". Baseline data may be collected from a combination of existing data and field sampling. It is anticipated that much of the data collection and information needed for baseline conditions, without project and with project, trends will be generated using geographical information systems.

A consultant under contract to USACE staff will perform any data collection and analysis to support these evaluations. In-house efforts will include collection and transmittal of data, field trips to evaluate alternatives, developing scopes of work, initiating and managing the contract, workshop planning and attendance, coordination with the ICT, review of draft documents, and preparing documents for the Feasibility Report and EIS.

### **ECOSYSTEM RESTORATION AND BENEFICIAL USES**

Suggestions from the resource agencies and public for restoring sensitive biological resources (e.g. seagrasses) in the area with beneficial uses of dredged material will be evaluated and incorporate them into the DMMP. Suggestions for additional specific ecosystem restoration opportunities will also be collected and incorporated into the project as appropriate.

The Habitat Assessment Workgroup of the ICT will identify and assess restoration opportunities. Tasks of this subcommittee will be to identify and quantify target habitats to be restored and analyze restoration proposals following accepted methods such as Habitat Evaluation Procedures or acre-year analyses. An incremental analysis will be conducted to compare alternatives and their associated costs to choose the cost efficient restoration plan.

### **MITIGATION**

All efforts will be made to avoid and minimize environmental impacts of the proposed actions. After avoiding and minimizing environmental impacts to the maximum extent possible, the remaining unavoidable habitat losses will be compensated to the extent justified according to ER-1105-2-100.

After a project alternative has been selected and habitat losses and gains have been quantified, mitigation type (habitat to be replaced in-kind or out-of-kind), quantity (acres) and location will be determined. To initiate this process, a Mitigation Workgroup of the ICT may be formed. The first task of this subcommittee will be to quantify losses for each habitat type using an accepted method such as Habitat Evaluation Procedures, acre-year analysis, or any other acceptable method. The subcommittee will then identify possible alternatives for compensation for each habitat type lost and determine unit costs. An incremental analysis will be conducted for each habitat type using the available alternatives and their associated costs to choose the cost efficient plan for mitigation.

<b>Impact, Mitigation and Restoration Assessments</b>	<b>Days</b>	<b>Cost</b>
<b><i>Initial Plan Formulation</i></b>	No Activity	
<b><i>Plan Formulation</i></b>		
Site Visit	1	\$1,000
Habitat Assessment		
Model Selection/Development	10	10,000
Contract for Data Collection and Habitat Analysis Support	Contract	90,000
Contract administration	3	3,000
Analyze Baseline Data	10	10,000
Evaluate Baseline Results/Develop Without Project		
Trends	5	3,000
Analyze Without Project Trends	10	10,000
Develop Alternatives	20	20,000
Site Visit	1	1,000
Habitat Assessment Restoration		
Develop With Project Trends	5	5,000
Analyze With Project Restoration Plans	10	10,000
Evaluate With Project Plan Results	3	3,000
Mitigation		
Develop Alternative Mitigation Plans and Trends	5	5,000
Analyze Alternative Mitigation Plans	10	10,000
Evaluate Alternative Mitigation Plan Results	3	3,000
Cost Effectiveness/Incremental Cost Analysis	Contract	15,000
Contract support, report review and comment	4	4,000
<b><i>Final Plan Formulation</i></b>		
Internal Review of Draft Reports	4	4,000
<b><i>Report Preparation and Approval</i></b>		
Internal Review of Final Reports	2	2,000
<b>Total</b>		<b>\$209,000</b>

## THREATENED AND ENDANGERED SPECIES

A Biological Assessment (BA) will be prepared as required by Section 7 of the Endangered Species Act (ESA) to determine any project impacts on any Federally listed threatened or endangered species. A list of threatened and endangered species that may occur in the project

area will be requested from appropriate State and Federal resource agencies. A literature search, consultation with local and academic experts, resource agencies, and a field search will be performed to obtain historical information, current population data for the species entire range and the affected area, and possible impacts of the project, whether adverse or beneficial, on each listed species. The BA will incorporate this information to determine impacts to the threatened and endangered species that may occur in the project area and may include alternatives to eliminate any adverse impacts.

If project-related adverse impacts are determined, formal consultation under Section 7 will be requested with the appropriate agency to identify mutually acceptable alternative(s) or mitigation measures to reduce or eliminate these impacts. Critical habitat for the endangered piping plover, as well as habitat that is likely to be utilized by ocelot and jaguarundi occurs in the project vicinity. In addition, species of endangered sea turtles are known to occur in the project area. Therefore, entering into formal consultation is likely, and extensive coordination with the USFWS and NMFS will be required. If no adverse impacts are determined, a biological opinion stating concurrence with the assessment will be requested from the appropriate agencies, fulfilling requirements of the ESA.

Costs for preparing baseline and impacts sections on threatened and endangered species in the study area are captured in the contract costs for Baseline Environmental Studies and EIS Preparation located under the appropriate plan formulation phase of the section entitled NEPA Document Preparation and Plan Formulation.

<b>Threatened &amp; Endangered Species</b>	<b>Days</b>	<b>Cost</b>
<b><i>Initial Plan Formulation</i></b>		
Initiate Coordination with USFWS and NMFS	5	\$5,000
Support for T&E Baseline Data Collection	5	5,000
<b><i>Plan Formulation</i></b>		
Review and Comment on Draft BA	5	5,000
Coordination/Consultation with USFWS and NMFS	10	10,000
<b><i>Final Plan Formulation</i></b>		
Review and Comment on Draft and Final BA	5	5,000
Coordination/Consultation with USFWS and NMFS	10	10,000
<b><i>Report Preparation and Approval</i></b>		
T&E Write-up for EIS	3	3,000
<b>Total</b>		<b>\$43,000</b>

## **FISH AND WILDLIFE COORDINATION ACT**

Under this act, USACE staff is required to coordinate with and solicit recommendations of the USFWS concerning the study and project potential impacts. Under an interagency agreement, funds will be transferred to the USFWS for which the USFWS will attend sites visits, provide input and assistance during ICT meetings, provide support and recommendations to ICT



workgroups (e.g. for habitat assessments, salinity modeling, etc.), and prepare a Coordination Act Report (CAR). The CAR will describe the important biological features of the study area, assess the impacts of the various alternatives, make recommendations for fish and wildlife conservation measures, and recommend possible mitigation features. Information from the CAR will be incorporated in the Feasibility Report and EIS and included in an appendix to the report.

In addition to fulfilling the requirements of the Fish and Wildlife Coordination Act, the National Marine Fisheries Service and other State and Federal resource agencies will be consulted. These agencies are expected to provide important information for project planning with respect to impact analysis, threatened and endangered species, mitigation planning, and contaminant issues.

<b>Fish &amp; Wildlife Coordination Act</b>	<b>Days</b>	<b>Cost</b>
<i><b>Initial Plan Formulation</b></i>		
USFWS Coordination	5	\$5,000
<i><b>Plan Formulation</b></i>		
USFWS Coordination Act Report Activities	MIPR	10,000
<i><b>Final Plan Formulation</b></i>		
USFWS Coordination Act – Draft Report	MIPR	10,000
<i><b>Report Preparation and Approval</b></i>		
USFWS Coordination Act – Final Report	MIPR	10,000
In-house activities Included in Other Items		
<b>Total</b>		<b>\$35,000</b>

## **ESSENTIAL FISH HABITAT**

Essential Fish Habitat (EFH) will be identified and described as required by the Magnusen - Stevens Fishery Conservation and Management Act and its amendments. Potential project impacts to EFH will be identified and appropriate measures to eliminate or reduce these impacts will be coordinated with the National Marine Fisheries Service (NMFS).

These efforts will be conducted through contract administered by the USACE. In-house efforts include collection of available data, development of scopes of work, coordination with the ICT, and review and comment on documentation for the Feasibility Report and EA. Contract tasks will include attending ICT meetings; preparing habitat maps, offshore borrow sites, and other figures needed in the reports; preparing documentation for the Feasibility Report; and maintaining a GIS database.

Costs for preparing baseline and impacts sections on EFH are captured in the contract costs for Baseline Environmental Studies and EIS Preparation located under the appropriate plan formulation phase of the section entitled NEPA Document Preparation and Plan Formulation.

<b>EFH</b>	<b>Days</b>	<b>Cost</b>
<i><b>Initial Plan Formulation</b></i>		
Baseline Data Collection	1	\$1,000
<i><b>Plan Formulation</b></i>		
Review and Comment on draft EFH Assessment	1	1,000
<i><b>Final Plan Formulation</b></i>		
Review and Comment on EFH assessment	1	1,000
<i><b>Report Preparation and Approval</b></i>		
In-house activities Included in Other Items		
<b>Total</b>		<b>\$3,000</b>

## **COASTAL ZONE MANAGEMENT PROGRAM**

The Federal Coastal Zone Management Act of 1972 requires Federal actions occurring within the coastal zone of states with approved plans to be consistent with the goals and policies of the state coastal management plan. To show consistency with the Texas Coastal Management Plan (TCMP) a Consistency Determination will be prepared and submitted for review during the public review period for the Draft EIS. Coordination with the Coastal Coordination Council (CCC) through the Texas General Land Office (TxGLO) will be conducted together with other State and Federal resources agencies described above under the Fish and Wildlife Coordination Act. The selected plan for the project will be consistent with the TCMP.

Costs for preparing sections of the EIS related to CZMP consistency area are captured in the contract costs for Baseline Environmental Studies and EIS Preparation located under the appropriate plan formulation phase of the section entitled NEPA Document Preparation and Plan Formulation.

<b>Coastal Zone Management Program</b>	<b>Days</b>	<b>Cost</b>
<i><b>Initial Plan Formulation</b></i>		
Initial Coordination with the CCC	1	\$1,000
<i><b>Plan Formulation</b></i>		
Consistency Issues Coordination	3	3,000
<i><b>Final Plan Formulation</b></i>		
Consistency Issues Coordination	3	3,000

Total

\$9,000

## SOCIOECONOMIC RESOURCES

The socioeconomic profile will describe social and economic characteristics of the study area which will likely be influenced by the Federal project. Demographic and other relevant data needed to describe the baseline condition will be collected from the 2000 U.S. Census reports and other timely published sources. The impact assessment will also attempt to identify those social groups which will be impacted, either positively or negatively, by the Federal action. In accordance with Executive Order 12898 on Environmental Justice (EJ), the potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations as a result of the project will be identified and addressed in the EIS. Minority and low income populations within the project area will be identified, and plans to avoid or mitigate impacts to socioeconomic resources will be developed and analyzed for local acceptability.

The proposed channel deepening and widening of the BIH channel along with the Port of Brownsville's location as the southernmost port in Texas and its proximity to the proposed Interstate 69 (I-69) international trade corridor could position the Port of Brownsville as the major transportation hub for south Texas and the U.S. Increased regional trade and traffic, particularly from waterborne vessels, would likely result from implementing such a project. Of particular concern is the potential for increased vessel traffic within the Gulf Intracoastal Waterway in the vicinity of Port Isabel, located north of the project area which could lead to an increase in the risk of vessel-related collisions as occurred in the Queen Isabella Causeway tragedy in September 2001. This incident involved a barge tow striking the Causeway causing it to collapse, killing eight people and shutting down access for tourists, workers and residents to South Padre Island. Therefore, the socioeconomic impacts assessment will address potential impacts to the area economy, health and welfare of the community as a result of increased regional trade and any increase in risk of vessel-related collision as a result of the project.

The socioeconomic profile and impact assessment will be performed under contract. Additional costs for preparing baseline and impacts sections of the EIS related to socioeconomic resources are captured in the contract costs for Baseline Environmental Studies and EIS Preparation located under the appropriate plan formulation phase of the section entitled NEPA Document Preparation and Plan Formulation.

<b>Socioeconomic Resources and Environmental Justice</b>	<b>Days</b>	<b>Cost</b>
<b>Initial Plan Formulation</b>		
Socioeconomic Profile and Impact Assessment Report	Contract	\$20,000
Contract admin & report review (Baseline Report)	1	\$1,000
<b>Plan Formulation</b>		
Review Impact Sections of Draft EIS	1	\$1,000

**Final Plan Formulation**

Review Impact Sections of Draft EIS	1	\$1,000
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**Report Preparation and Approval**

Review Impact Sections of Final EIS	1	\$1,000
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<b>Total</b>		<b>\$24,000</b>
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## AIR QUALITY AND NOISE ASSESSMENTS

The current status of air quality issues within the study area will be assessed in compliance with the Federal Clean Air Act and the attainment of National Ambient Air Quality Standards (NAAQSs). NAAQSs are established by the EPA and measure six outdoor air pollutants: ground-level ozone, particulate matter, lead, nitrogen dioxide, carbon monoxide, and sulfur dioxide. The USACE staff will coordinate with appropriate state and federal agencies to evaluate impacts to air quality from predicted changes in NAAQSs with each alternative. The Brownsville area currently complies with all NAAQSs. Therefore, a general conformity determination will not be required.

Under the Noise Control Act of 1972, immediate activities within the Project area affecting noise levels will be assessed. Current activities affecting noise levels include, but are not limited to, existing port facilities and operations, waterborne transportation (i.e., barges, commercial fishing vessels, sport and recreational boats, etc.) and dredging operations. An assessment of impacts to noise levels within the Project area resulting from implementation of project alternatives will be made in accordance with guidelines developed by the EPA.

Air and noise impact assessments will be performed under contract. Costs for preparing baseline and impacts sections of the EIS related to air quality and noise are captured in the contract costs for Baseline Environmental Studies and EIS Preparation located under the appropriate plan formulation phase of the section entitled NEPA Document Preparation and Plan Formulation.

<b>Air and Noise Assessments</b>	<b>Days</b>	<b>Cost</b>
<b>Initial Plan Formulation</b>		
Baseline Data Collection	Contract	\$10,000
Contract support & baseline report review	1	1,000
<b>Plan Formulation</b>		
Review Impact Sections of Draft EIS	1	1,000
<b>Final Plan Formulation</b>		
Review Impact Sections of Draft EIS	1	1,000
<b>Report Preparation and Approval</b>		
Review Impact Sections of Final EIS	1	1,000
<b>Total</b>		<b>\$14,000</b>

## TRAFFIC ASSESSMENTS

As noted above, the proposed BIH channel deepening and widening project in conjunction with its location could position the Port of Brownsville as the major regional and international transportation hub. Therefore, increases in regional trade and associated increases in vessel and vehicular traffic would likely result from implementing such a project. The current vessel and vehicular traffic status of the project area will be documented and compared to the project changes in traffic levels anticipated as a result of the Federal project.

Vehicular traffic impact assessments will be performed under contract; vessel traffic assessments performed by the Planning Section for the FS will be used to assess impacts to vessel traffic. Costs for preparing the baseline and impacts sections of the EIS related to traffic are captured in the contract costs for Baseline Environmental Studies and EIS Preparation located under the appropriate plan formulation phase of the section entitled NEPA Document Preparation and Plan Formulation.

<b>Traffic Assessments</b>	<b>Days</b>	<b>Cost</b>
<b><i>Initial Plan Formulation</i></b>		
Baseline Data Collection	Contract	\$5,000
Contract admin & Baseline assessment review	2	1,000
<b><i>Plan Formulation</i></b>		
Review Impact Sections of Draft EIS	1	1,000
<b><i>Final Plan Formulation</i></b>		
Review Impact Sections of Final EIS	1	1,000
<b><i>Report Preparation and Approval</i></b>		
Review Impact Sections of Final EIS	1	1,000
<b>Total</b>		<b>\$9,000</b>

## HISTORIC PROPERTIES

### Initial Plan Formulation

During initial plan formulation, USACE cultural resource staff will perform historical/archival research to identify archaeological sites and historic period shipwrecks which may be affected by the proposed navigation project. The research will include a search of site files and maps at the office of the Texas State Historic Preservation Officers (SHPO). Information on previous surveys, previously recorded archeological sites, shipwrecks, historic structures, National Register sites or structures, and State Archeological Landmarks located in the study area will be obtained. Estimated staff effort to accomplish historical/archival research is 7 staff days.

### Plan Formulation

Section 106 of the Historic Preservation Act of 1966 requires Federal agencies to take into account the effect of proposed undertakings on historic properties listed on or eligible for the National Register of Historic Places. To accomplish this requirement, USACE cultural resource

staff will use a Government contractor to identify and inventory historic properties in portions of the study area that have not previously been surveyed. It is assumed that the survey will be performed for areas affected by the recommended plan only. These activities will commence toward the end of the plan formulation phase when impact areas for the recommended plan are reasonably certain. USACE staff will coordinate the survey results with the Texas SHPO. The report will provide preliminary assessments of potential National Register eligibility and make recommendations for work required to complete National Register eligibility assessments of sites or shipwrecks to be affected by the project.

The estimate for the historic properties surveys is based upon general knowledge of the study area:

1) The prehistory of the Lower Rio Grande Valley of Texas is poorly understood. Terrestrial archaeological investigations have primarily been limited to surface collections by professional and amateur archaeologists. No extensive controlled excavations have been undertaken in the study area with the exception of Government contract investigations for the construction and maintenance of the existing channel. The earliest and most extensive work in the area was conducted by A.E. Anderson, a civil engineer who collected and recorded almost 400 sites in Cameron County and adjacent parts of Tamaulipas, Mexico. Some historic properties surveys have been conducted in the study area for new work and maintenance of the existing channel. Eleven sites are located along the existing channel, five of which are considered to be potentially eligible for listing in the National Register of Historic Places. Potential historic properties in the study area may include: prehistoric archaeological sites like 41CF8, 41CF19 and 41CF100; historic sites such as 41CF4, which is associated with the Mexican-American War, and 41CF18, which is believed to be a Confederate camp; and, historic structures. Extensive marine surveys have been conducted in the study area. The most recent study was conducted in September of 1990 on the Brownsville Ship Channel (BSC) entrance and vicinity. Eighteen anomalies were located within the BSC entrance corridor, with one anomaly having potential for National Register eligibility. This body of information will be utilized to identify and assess the possible impacts from the various project alternatives.

2) Dredged material from the inland channel will be placed in existing upland placement areas; however, this estimate include survey of high probability landforms which may be affected by placement activities. Landforms called lomas are considered to be high probability for archaeological sites, and have previously been utilized as natural levees for upland dredge disposal areas. A terrestrial survey of the lower 7 miles of the Brownsville Ship Channel and upland lomas used as levees for dredged material placement areas is necessary to reassess previously recorded sites and to survey areas that may be affected by degrading existing placement areas, excavation for marsh creation or the construction of salinity control structures or barriers. The terrestrial survey is estimated at \$55,000 based on known site density and high probability landforms in the study area.

3) Marine investigations for shipwrecks will be required for channel modifications from deepening and widening of the existing offshore channel segment, and also for the extension of the entrance channel to the 50-foot contour. The marine remote-sensing survey is estimated at \$60,000 based on proposed channel modifications and proposed channel extension. Additional offshore dredge material placement areas or beneficial use sites (BU) may be needed; however, this estimate is based on the use of previously established dredge disposal